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1994

EPA Superfund
Record of Decision:

USN AIR STATION CECIL FIELD
EPA ID: FL5170022474
OU 02
JACKSONVILLE, FL
09/30/1994

INTERIM RECORD OF DECISION

OIL AND SLUDGE DISPOSAL AREA SOUTHWEST, SITE 17, OPERABLE UNIT 2

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code (UIC): N60200

Contract No. N62467-89-D-0317

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Alan Shoultz, Code 1875, Engineer-in-Charge

September 1994

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA GEORGIA 30365

4WD-FFB

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Captain Kirk T. Lewis
Commanding Officer, NAS Cecil Field
P.O. Box 108 (code 00)
Cecil Field, Florida 32215-0108

SUBJ: Cecil Field Site 17

Dear Captain Lewis:

The Environmental Protection Agency (EPA) has received and reviewed the final Interim Record of Decision (IROD) for the oil and sludge disposal area, also known as Site 17. EPA concurs with the Navy's decision as set forth in the IROD dated September 30, 1994. This concurrence is with the understanding that the proposed action is an interim action and the need for any future or final remedial action will be addressed following the finalization of the Baseline Risk Assessment (BRA).

EPA appreciates the opportunity work with the Navy on this site and other sites at Cecil Field. Should you have any questions, or if EPA can be of any assistance, please contact Mr. Bart Reedy of my staff at the letterhead address or at (404) 347-3555 vmx 2049.

Sincerely,

Patrick Tobin

Patrick Tobin
Assistant Regional Administrator
Region IV, EPA

cc: Mr. James Crane, FDEP
Mr. Eric Nuzie, FDEP
Mr. Michael Deliz, FDEP
Mr. Steve Wilson, SDIV

REEDY\saj\A:\CONCUR17\14SEPT94\DRAFT

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AOC	area of concern
ARARs	applicable or relevant and appropriate requirements
bls	below land surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FFS	Focused Feasibility Study
FID	flame ionization detector
ft/day	feet per day
FS	Feasibility Study
IAS	Initial Assessment Study
IROD	Interim Record of Decision
LDR	Land Disposal Restrictions
Fg/kg	micrograms per kilogram
Fg/R	micrograms per liter
mg/kg	milligrams per kilogram
mg/R	milligrams per liter
MCLs	Maximum Contaminant Levels
MSDS	Material Safety Data Sheets
NAS	Naval Air Station
NAAQS	National Ambient Air Quality Standards
NAPL	Non-aqueous phase liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priority List
NSPS	New Source Performance Standards
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	tetrachloroethene
PEL	permissible exposure limit
ppb	parts per billion
PPE	personal protection equipment

GLOSSARY (Continued)

RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RI/FS	Remedial Investigation and Feasibility Study
SARA	Superfund Amendments and Reauthorization Act
SVOCs	semivolatile organic compounds
TAL	target analyte list
TCA	trichloroethane
TCE	trichloroethene
TCL	target compound list
TCLP	Toxicity Characteristic Leaching Procedure
TMSS	Technical Memorandum for Supplemental Sampling
TRPH	total recoverable petroleum hydrocarbons
TSD	treatment, storage, and disposal
USEPA	U.S. Environmental Protection Agency
VOCs	volatile organic compounds
yd^3	cubic yards

1.0 DECLARATION FOR THE INTERIM RECORD OF DECISION

1.1 SITE NAME AND LOCATION. The site name is Oil and Sludge Disposal Area Southwest, Site 17, Operable Unit (OU) 2. Site 17 is located east of Perimeter Road in the southwest part of Naval Air Station (NAS) Cecil Field, Jacksonville, Florida.

1.2 STATEMENT OF BASIS AND PURPOSE. This decision document presents the selected interim remedial action for source control at Site 17, the former Oil and Sludge Disposal Area, Southwest. The selected interim remedial action was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP, 40 Code of Federal Regulations [CFR] 300). This decision document explains the factual basis for selecting the interim remedy for Site 17 and the rationale for the final decision. The information supporting this interim remedial action decision is contained in the Administrative Record for this site.

The purpose of the interim remedial action is to provide source control at Site 17. During this action contaminated soil will be excavated and treated by thermal desorption. This will stabilize the site, prevent additional site degradation, and prevent further migration of contaminants in soil to groundwater. The U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP) concur with the selected interim remedy.

1.3 ASSESSMENT OF THE SITE. Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response actions selected in this Interim Record of Decision (IROD), may present an imminent and substantial endangerment to public health, welfare, or the environment as a result of concentrations of contaminants in soil and groundwater in excess of health-based levels.

1.4 DESCRIPTION OF THE SELECTED REMEDY. The preferred alternative for source control at Site 17 is Alternative RA-2, excavation and on-site thermal treatment. Alternative RA-2 involves the following tasks:

- Clear and prepare the site.
- Excavate contaminated soil during seasonal low groundwater.
- Begin processing soil through an on-site thermal desorption treatment unit as soon as excavation begins.
- Stockpile treated soil until excavation is complete.
- Collect and analyze samples from the excavation to verify the attainment of the cleanup criterion.
- Backfill the excavated area with treated soil.

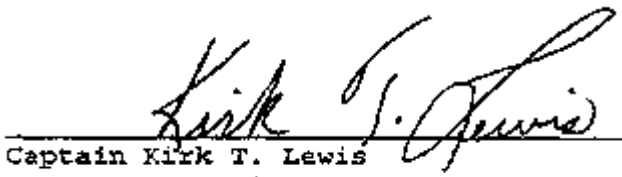
- Restore the site and demobilize

Thermal desorption treatment of contaminated soil is used frequently for treatment of petroleum-contaminated soil associated with leaking underground storage tanks at former gasoline stations. The technology uses heat to volatilize contaminants from soil without incinerating the soil. The volatilized contaminants are then destroyed in an afterburner that treats all of the offgases from the system. The technology has been demonstrated as reliable for treatment of the types of contaminants present at Site 17. It provides a quicker remediation than biological alternatives. Treatment specifics including the confirmatory sampling program, will be provided in subsequent design documents. The estimated cost for the preferred alternative is $1.4 million and would take approximately 3 months to implement.

1.5 STATUTORY DETERMINATIONS. This interim action is protective of human health and the environment, complies with Federal and State applicable or relevant and appropriate requirements (ARARs) for this limited scope action, and is cost effective. Although this interim action is not intended to fully address the statutory mandate for permanence and treatment to the maximum extent practicable, this interim action uses treatment and, thus, is in furtherance of that statutory mandate. Because this action does not constitute the final remedy for all media at Site 17, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element, although partially addressed in this remedy, will be addressed by the final response action. Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment within 5 years after commencement of the interim remedial action. Subsequent actions are planned to address fully the threats posed by the conditions in the soil and groundwater at this site.

Because this is an interim action ROD, review of this site and of this remedy will be ongoing as the Navy continues to develop final remedial alternatives for this site and this OU.

1.6 SIGNATURE AND SUPPORT AGENCY ACCEPTANCE OF THE REMEDY



Captain Kirk T. Lewis
Commanding Officer, NAS Cecil Field

30 Sep 94
Date

2.0 DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND DESCRIPTION. NAS Cecil Field is located 14 miles southwest of Jacksonville in the northeastern part of Florida. Most of NAS Cecil Field is located within Duval County; however, part is located in the northern part of Clay County.

NAS Cecil Field was established in 1941 and provides facilities, services, and material support for the operation and maintenance of naval weapons, aircraft, and other units of the operating forces as designated by the Chief of Naval Operations. Some of the tasks required to accomplish this mission include operation of fuel storage facilities, performance of aircraft maintenance, maintenance and operation of engine repair facilities and test cells for turbo-jet engines, and support of special weapons systems.

Site 17 is located east of Perimeter Road in the southwest part of NAS Cecil Field as shown in Figure 2-1. Site 17 is combined with Site 5 as OU 2 at NAS Cecil Field due to their proximity and similarity as waste oil and fuel disposal sites.

Site 17 covers an area of approximately 2 acres where liquid wastes consisting of waste oil and fuel were disposed in a pit and allowed to evaporate and drain into the soil, as shown in Figure 2-2. The waste disposal area reportedly was an unlined pit approximately 50 feet in diameter and 3 to 5 feet deep (Envirodyne Engineers, 1985). Visible staining of soil is evident at the site and a distinct petroleum odor exists when soil is disturbed. Site 17 is primarily vegetated with grasses and slash pines; however, areas of the site are void of vegetation. The site is flat and some ponding of water on the land surface is evident during the wet seasons. A wetlands exists to the east of the site (see Figure 2-2). The land adjacent to the site is primarily wooded. There is no development on, or current use of, adjacent lands. The nearest base housing is located approximately 5,500 feet northeast of the site.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES. Disposal was conducted at Site 17 for a 2- to 3-year period in the late 1960's or early 1970's. Liquid wastes from the fuel farm, aircraft intermediate maintenance department, squadrons, and public works were typically taken to the site in bowsers (portable storage tanks) or 55-gallon drums, drained into the pit, and allowed to seep into the soil or evaporate. Waste oil and fuel were reportedly disposed at the site. Solvents, paints, and paint thinners may have also been mixed with waste oils and disposed at the site; however, specific records of such disposal are not available (Envirodyne Engineers, 1985). To date there have been no enforcement activities at the site.

2.3 PREVIOUS INVESTIGATIONS. Previous environmental investigations at Site 17 include an Initial Assessment Study (IAS), a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI), and a Remedial Investigation (RI). The results of these investigations are summarized below.

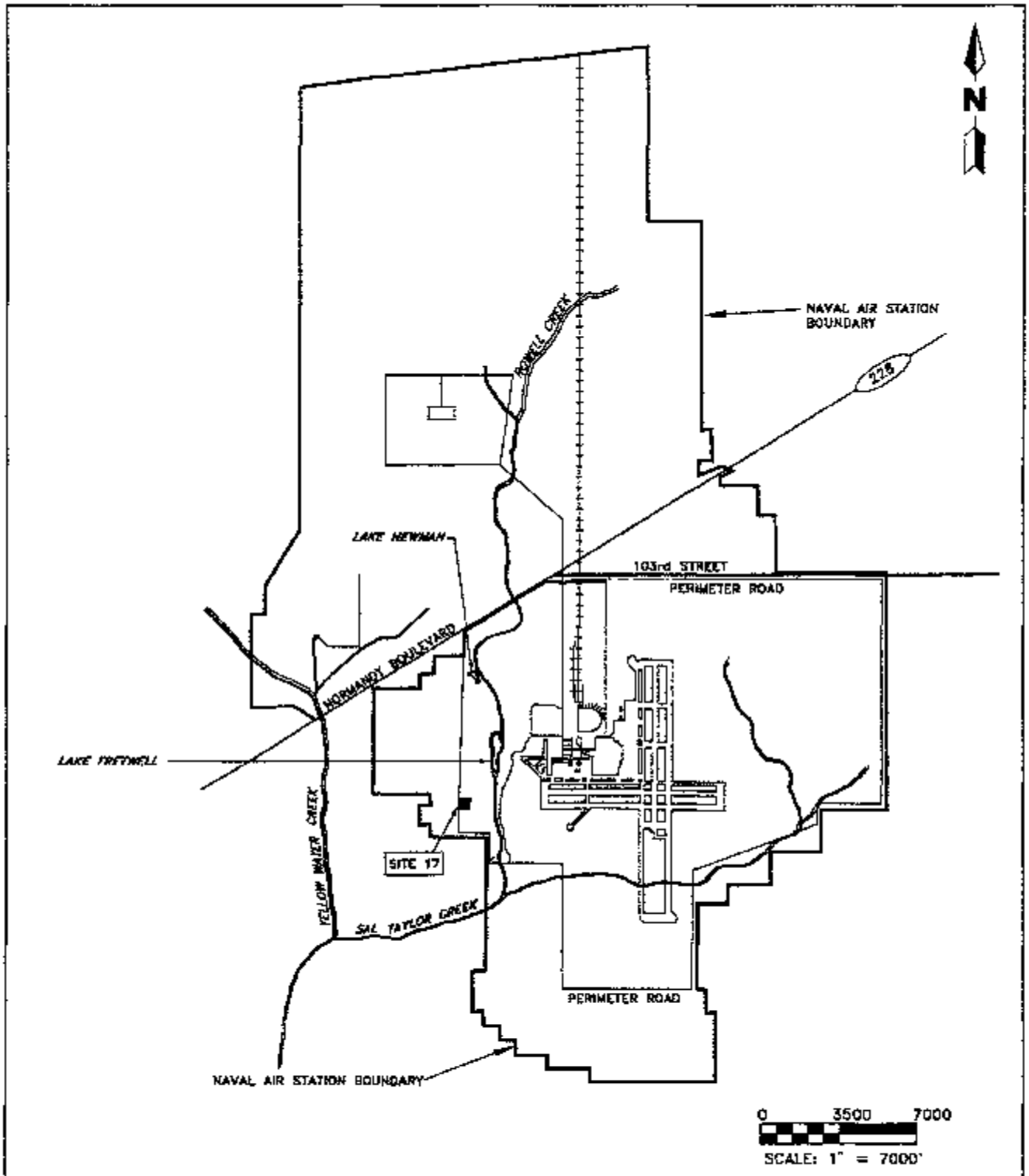
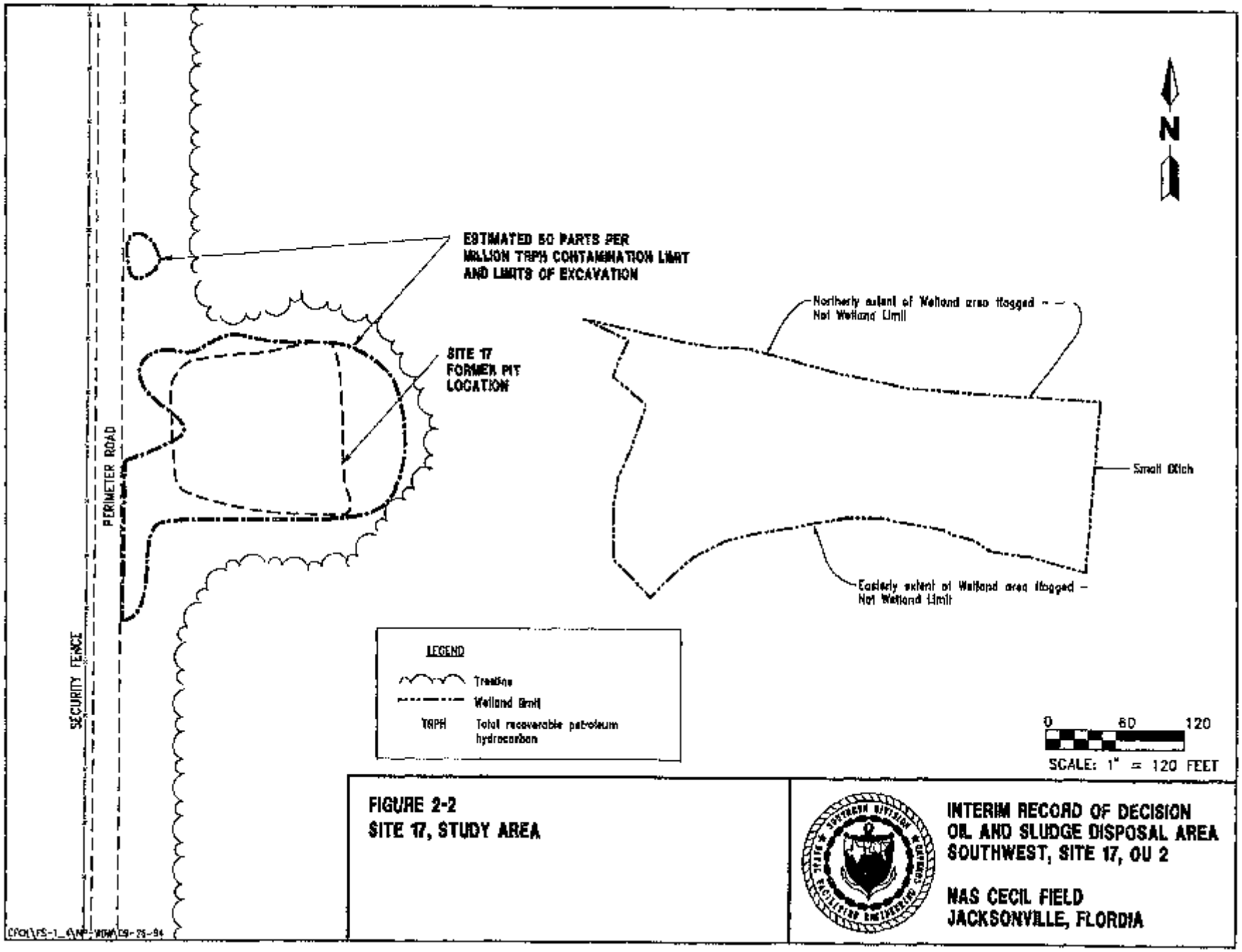


FIGURE 2-1
FACILITY MAP WITH LOCATION OF SITE 17

CECIL/FPSFACIL/NP-WOW/05-26-94

INTERIM RECORD OF DECISION
OIL AND SLUDGE DISPOSAL AREA
SOUTHWEST, SITE 17, OU 2

NAS CECIL FIELD
JACKSONVILLE, FLORIDA


ESTIMATED 50 PARTS PER MILLION TRPH CONTAMINATION LIMIT AND LIMITS OF EXCAVATION
SITE 17 FORMER PIT LOCATION
Northerly extent of Wetland area flagged – Not Wetland Limit
Small Ditch
Easterly extent of Wetland area flagged – Not Wetland Limit
PERIMETER ROAD
SECURITY FENCE
N
LEGEND
Treeline
Wetland Limit
TRPH Total recoverable petroleum hydrocarbon
0 60 120
SCALE: 1" = 120 FEET
FIGURE 2-2
SITE 17, STUDY AREA
INTERIM RECORD OF DECISION
OIL AND SLUDGE DISPOSAL AREA
SOUTHWEST, SITE 17, OU 2
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Initial Assessment Study. The IAS was performed in 1985 by Envirodyne Engineers to identify waste sites at NAS Cecil Field that warranted further investigation. The study included an investigation of historical data and aerial photographs as well as field inspections and personnel interviews. A total of 18 sites were identified as a result of the IAS, including Site 17.

RCRA Facility Investigation. The RFI was performed in 1988 by Harding Lawson Associates. Field investigations included a geophysical survey using a magnetometer, the installation of two monitoring wells, and sampling and analyses of groundwater from monitoring wells. The geophysical survey identified one anomalous area in the woods to the northeast of the site. No objects were observed on the land surface in this area. During well installation, fine-grained sands interbedded with silt layers were encountered. Groundwater samples were collected from the two new wells plus one existing well and analyzed for selected organics and metals. All parameters tested were below method detection limits (Harding Lawson Associates, 1988).

Remedial Investigation (RI), 1991 Additional sampling of environmental media was conducted as part of an RI by ABB-ES during the fall of 1991 and spring of 1992. These investigations included: groundwater headspace screening, piezocone surveying, soil sampling, installing additional monitoring wells, groundwater sampling, hydraulic conductivity testing, and collecting groundwater elevation data. The results from these investigations have been summarized in the *Technical Memorandum for Supplemental Sampling at Operable Units 1, 2, and 7 (*TMSS) (ABB-ES, 1992). A synopsis of these activities for Site 17 is provided below.

Groundwater Headspace Screening. Five groundwater headspace analyses were conducted. Maximum concentrations of 1,1,1-trichloroethane (1,1,1-TCA) and trichloroethene (TCE) detected were 0.3 micrograms per liter (Fg/R) and 44 Fg/R, respectively.

Piezocone Survey. One piezocone sampling probe was installed to 8 feet below land surface (bls). Interpretation of piezocone data indicates silty to clayey fine-grained sands, fine-grained sand, and cemented sand to hardpan. Refusal of the cone was encountered in a fine-grained sand unit.

Soil Sampling. Three soil borings were installed at Site 17 and two soil samples were collected from each boring. A complete summary of analytical results is available in the TMSS (ABB-ES, 1992).

Installation of Monitoring Wells. Three monitoring wells were installed at Site 17 to monitor groundwater quality in the upper part of the surficial aquifer.

Groundwater Sampling and Analysis. Groundwater samples were collected from the three newly installed wells and one of the existing wells. A variety of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and total recoverable petroleum hydrocarbons (TRPH) were found in these samples. A complete summary of analytical results is available in the TMSS (ABB-ES, 1992).

Hydraulic Conductivity Testing and Water Level Elevations. Slug tests were performed in three wells at Site 17 to determine hydraulic conductivity. Average hydraulic conductivities for the upper surficial aquifer at Site 17 were

estimated to range from 1.84 feet per day (ft/day) to 3.94 ft/day. Water level measurements were collected in November 1991 and April 1992.

Remedial Investigation, 1993. Additional sampling and analytical efforts were performed at Site 17 in 1993. These activities included surface soil sampling, subsurface soil sampling, installation of additional monitoring wells, and groundwater sampling.

Surface Soil Sampling. Surface soil sampling consisted of collecting of samples for both on-site and off-site analyses. Samples analyzed on-site were referred to as screening samples and were collected from 94 locations across a comprehensive grid covering the site on 40-foot centers. Based on results of the screening, the locations for samples for off-site analyses, referred to as confirmatory samples, were selected. Fourteen surface soil locations were selected for confirmatory sampling. Table 2-1 lists the contaminants found in surface soils at the site.

Subsurface Soil Sampling. Subsurface soil sampling consisted of collecting of screening and confirmatory sampling in two stages. Initially, 20 soil borings were installed and 2 soil samples from different depths were analyzed from each boring. Twelve additional boring locations were selected for confirmatory sampling, and two samples were collected and analyzed from each boring. Analyses performed were the same as for surface soil samples described above. Table 2-1 lists the contaminants found in subsurface soils at the site.

Groundwater Sampling. The 20 screening borings installed for subsurface soil sampling were extended into the aquifer and groundwater screening samples were collected from 4-foot zones at various depths to provide a better characterization of groundwater contamination. Based on results of the groundwater screening samples, 13 additional monitoring wells were installed to better characterize the extent of groundwater contamination around the site and provide a better characterization of groundwater contamination with depth in the center of the old disposal area. Groundwater samples were collected at each of the monitoring wells and analyzed for target compound list (TCL) VOCs, TCL SVOCs, target analyte list (TAL) inorganics, and TRPH.

2.4 HIGHLIGHTS OF COMMUNITY PARTICIPATION. The Focused Feasibility Study (FFS) report and Proposed Plan were completed and released to the public on August 12, 1994. A public meeting was held on August 25, 1994, to present information on the proposed interim remedial action at Site 17 and to solicit comments on the proposed cleanup. These documents and other Installation Restoration program information are available for public review in the Information Repository and Administrative Record. The repository is maintained at the Charles D. Webb Wesconnett Branch of the Jacksonville Public Library in Jacksonville, Florida. The notice of availability of these documents was published in *The Florida Times Union* on August 11, 17, 20, 21, and 24, 1994.

A 30-day public comment period was held from August 12, 1994 to September 12, 1994. At the public meeting on August 25, 1994, representatives from NAS Cecil Field, USEPA, FDEP, and the Navy's environmental consultants presented information on the remedial alternatives and answered questions regarding the proposed interim remedial action atSite 17. No written comments were received

Table 2-1
Contaminants Found in Surface Soil and Subsurface Soil at Site 17

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Jacksonville, Florida

Surface Soils	Subsurface Soils
Volatile Organic Compounds	**Volatile Organic Compounds**
Ethylbenzene	Acetone
1,2-Dichloroethene	Methylene chloride
	Chlorobenzene
Semivolatile Organic Compounds	2-butanone
1,2-Dichlorobenzene	Toluene
Total recoverable petroleum hydrocarbons	Ethylbenzene
	Total Xylenes
	1,1,1,-Trichloroethane
	Trichloroethene
	4-Methyl-2-pentanone
	Semivolatile Organic Compounds
	Phenol
	4-Methylphenol
	2-Methylphenol
	Naphthalene
	2-Methylnaphthalene
	Dibenzofuran
	Diethylphthalate
	Di-n-butylphthalate
	Fluoranthene
	Fluorene
	bis(2-Ethylhexyl)phthalate
	1,2-Dichlorobenzene
	1,3-Dichlorobenzene
	1,4-Dichlorobenzene
	Hexachlorobenzene
	Pyrene
	Chrysene
	Benzo(b)fluoranthene
	Total recoverable petroleum hydrocarbons
	2,4-Dimethylphenol
	Pesticides/Polychlorinated Biphenyls (PCBs)
	alpha-benzene hexachloride (BHC)
	beta-BHC
	Endosulfan II
	Methoxychlor
	Aldrin
	4,4-dichlorodiphenyldichloroethene (DDE)
	Inorganics
	Barium
	Calcium
	Chromium
	Copper
	Lead
	Magnesium
	Manganese
	Sodium

Notes: 1. Surface soil results are available from field screening samples only, which included analyses for a limited number of chemicals. More extensive sample results will be available in the Remedial Investigation and Feasibility Study (RI/FS) for Operable Unit (OU) 2.
2. Surface soil samples were collected from 0 to 6 inches below land surface (bls). Subsurface soil samples were collected at 2-foot intervals from 0 to 8 feet bls.

OU = operable unit. NAS = naval air station.

during the public comment period; however, questions asked during the public meeting are summarized and addressed in Appendix A, Responsiveness Summary.

2.5 SCOPE AND ROLE OF INTERIM REMEDIAL ACTION. Investigations at Site 17 indicated the presence of soil contamination from past oil disposal. The purpose of this interim remedial action is to remove the source of contamination to groundwater and reduce potential human health and ecological risk at Site 17. Based on previous investigations the following interim remedial action objectives were established for Site 17:

- remediate contaminated soil in the vadose zone to reduce the source of contaminants to groundwater, and

- remediate contaminated surface soil to reduce health risks from direct contact exposure.

Upon completion of the overall Remedial Investigation and Feasibility Study (RI/FS) for OU 2, the need for remedial action to address groundwater contamination will be evaluated. This IROD addresses interim source control (i.e., control of contaminants from deposited wastes that may migrate and pose risks to human health and the environment) at Site 17. It is believed that this interim action is consistent with any future remedial activities that may take place at the site.

2.6 SITE CHARACTERISTICS. Characteristics of Site 17 are described below.

Geology and Hydrogeology. The subsurface at Site 17 is composed primarily of sand and silty sand with lenses of cemented sand and silt encountered 22 feet bls and deeper. A dolomite layer exists approximately 102 feet bls with a clay unit approximately 32 feet in thickness overlying the dolomite. The surficial aquifer system extends from the water table to the clay unit. Hydraulic conductivities for the soil were estimated to range from 1.84 foot per day (ft/day) to 3.94 ft/day. The elevation of the groundwater table is highly seasonable, ranging from 3 feet bls to 7 feet bls. The fluctuating groundwater table and the lack of a consistent gradient has prevented the interpretation of a definite and consistent direction of groundwater flow. Groundwater contamination shows some indication that groundwater is moving to the southeast.

Soil Contamination. The soil contains organics typical of fuels (e.g., toluene, ethylbenzene, and xylenes) and aged waste oils. In addition, several samples have included detections of chlorinated organics; however, the low concentrations present suggest these were not disposed in large quantities at the site. Methylene chloride was reported in samples from soil borings installed during the 1991 RI in relatively high concentrations (29 and 58 milligrams per kilogram [mg/kg] in two separate samples). During the 1993 RI, methylene chloride was encountered again, but in much lower concentrations (0.35 mg/kg maximum).

TRPH results present the best characterization of the extent of contamination at Site 17. TRPH results indicate that residual soil contamination remains and extends down to 8 feet bls in the abandoned pit area. Surface soil TRPH results indicate that residualcontamination extends outward from the abandoned pit. The

estimated volume of soil with TRPH concentrations greater than 50 mg/kg is 9,900 cubic yards (yd^3).

The inorganic concentrations in samples at Site 17 were compared with 2 times the average detected concentrations in background samples for NAS Cecil Field. One sample with barium, 15 with calcium, 1 with chromium, 4 with copper, 4 with lead, 2 with magnesium, 6 with manganese, and 1 with sodium contained concentrations that exceeded 2 times the background average.

Inorganic concentrations are lower than would be necessary for soil to show a hazardous waste characteristic based on metals (i.e., would fall below Toxicity Characteristic Leaching Procedure [TCLP] regulatory levels). Historical records do not document any disposal of wastes at Site 17 that are classified as listed wastes under RCRA.

Groundwater Contamination. Groundwater results from the 1991 RI showed contamination with chlorinated solvents only, with TCE being the highest detected compound at 44 Fg/R; however, benzene, toluene, ethylbenzene, and xylene (BTEX) analyses were not conducted due to the malfunction of the flame ionization detector (FID) . Preliminary results from the 1993 RI do not show a strong presence of chlorinated solvents. Groundwater is primarily contaminated with TRPH, bis(2-ethylhexyl)phthalate, and phenol. Other compounds have also been detected including toluene, diethylphthalate, di-n-butylphthalate, and 4-methylphenol. There is no indication of a non-aqueous phase liquid (NAPL) present at Site 17.

2.7 SUMMARY OF SITE RISKS. The purpose of this Interim Remedial Action is to remediate the source of contamination to groundwater at Site 17; namely, the TRPH-contaminated soil. Results of the field investigations indicate TRPH contamination in and around the location of the former disposal pit. This contamination is a continuing source of groundwater contamination and represents a potential human health and environmental risk through direct contact with the skin or ingestion.

The decision to implement additional remedial actions for the remaining contamination at the site (i.e., groundwater, remaining soil, and sediment) will be evaluated upon finalization of the RI, baseline risk assessment, and FS. A baseline risk assessment will be completed as part of the overall RI for OU 2. The RI, baseline risk assessment, and FS are scheduled for completion during the first quarter of 1995.

To approximate the volume of soil that would be remediated for this interim action, an action level was established for the site. TRPH was chosen as the parameter on which to base the action level because of the extensive data available for the site and its effectiveness as an indicator for petroleum contamination. Other compounds have been detected at the site; however, data are less extensive for these compounds and do not provide a complete indication of soil that may be acting as a source of groundwater contamination.

The specific action level for TRPH is 50 mg/kg. This level was taken from the Florida standards for thermal treatment of petroleum-contaminated soils. The estimated volume of soil containing TRPH concentrations greater than 50 mg/kg is 9,900 yd^3.

2.8 DESCRIPTIONS OF ALTERNATIVES. Table 2-2 presents a description of the source control alternatives evaluated for Site 17. The alternatives are numbered to correspond with the alternatives provided in the FFS report (available at the Information Repository).

Table 2-2
Alternatives Evaluated for Interim Remedial Action at Site 17

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Jacksonville, Florida

Alternative	Alternative RA-1: Excavation and off site thermal treatment of contaminated soil.	Alternative RA-2: Excavation and on-site thermal treatment of contaminated soil.	Alternative RA-3: Excavation and on-site *ex-situ* biological treatment of contaminated soil.	Alternative RA-4: *In-situ* biological treatment of contaminated soil.
Soil Treatment Method	• Excavate contaminated soil during seasonal low groundwater. • Transport contaminated soil to off-site thermal treatment vendor. • Backfill with clean borrow.	• Excavate contaminated soil during seasonal low groundwater. • Treat soil on-site using a mobile thermal treatment unit • Backfill with treated soil.	• Excavate contaminated soil during seasonal low groundwater. • Treat soil biologically on-site in windrows. • Backfill with treated soil.	• Treat soil *in situ* by biological mechanisms enhanced with air injection and nutrient addition.
Activities Common to all activities	• Clear and prepare site. • Monitor treatment performance. • Demobilize and restore site to previous conditions.			
Cost	$1,376,000	$1,374,000	$1,176,000	$1,129,000

Notes: OU = operable unit NAS = naval air station.

Three of the alternatives (RA-1, RA-2, and RA-3) involve excavation of contaminated soil. All of the alternatives include treatment of the soil as a principal element.

Evaluation of a no action alternative, typically required in an FS, is not necessary in an FS because designation of an interim remedial action implies that some action should be taken.

2.9 SUMMARY OF COMPARATIVE ANALYSES OF ALTERNATIVES. This section evaluates and compares each of the alternatives with respect to the nine criteria used to assess remedial alternatives as outlined in Section 300.430(e) of the NCP. A comparative analysis of source control remedial alternatives for the nine criteria is provided in Table 2-3.

2.9.1. Overall Protection All alternatives would provide an increased level of protection of human health and the environment. Risks are reduced by removing and/or treating petroleum-contaminated soil, thereby preventing exposure and reducing a source of groundwater contamination.

Table 2-3
Comparative Analysis of Remedial Alternatives

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site17, OU 2
NAS Cecil Field, Jacksonville, Florida

Criterion	Alternative RA-1	Alternative RA-2	Alternative RA-3	Alternative RA-4
Overall Protection of Human Health and the Environment				
How risks are eliminated, reduced, or controlled.	Alternative RA-1 would provide an increased level of protection to human health and the environment because risks via direct contact with contaminants at the site are minimized. Worker health and safety requirements would be maintained.	Analysis is the same as for Alternative RA-1	Analysis is the same as for Alternative RA-1.	Analysis is the same as or less than that for Alternative RA-1
Short-term or cross-media effects.	No short-term adverse effects are expected to occur during implementation of this alternative. Care will be taken to prevent cross-media contamination during remedial action. Some volatilization during excavation and handling and some recontamination of backfilled soil by contact with groundwater may occur.	Analysis is the same as for Alternative RA-1 with greater chance of volatilization due to increased handling of soil.	Analysis is the same as for Alternative RA-2	Analysis is the same as for Alternative Ra-1 except that cross-media effects are less likely because no excavation occurs.
Compliance with ARARs				
Chemical-, location-, and action-specific ARARs	Would comply.	Would comply.	Would comply.	Would comply if 50 ppm TRPH level can be achieved.
Long-term Effectiveness and Permanence				
Magnitude of residual risk	The reduction risk at Site 17 would be permanent because contaminated soil would be removed from the site. Actual magnitude of residual risk at the site remaining after implementation of the interim remedial action would be addressed in the overall FS for Operable Unit 2. Risk associated with hazardous constituents in soil is reduced through treatment for destruction of these constituents.	Analysis is the same as for Alternative RA	Analysis is the same as for Alternative RA	Analysis is similar to Alternative RA-1 although soil is treated *in-situ,* not removed, and actual achievable cleanup levels may differ from *ex-situ* treatment.

See notes at end of table.

Table 2-3 (Continued)
Comparative Analysis of Remedial Alternatives

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Jacksonville, Florida

Criterion	Alternative RA-1	Alternative RA-2	Alternative RA-3	Alternative RA-4
Long-term Effectiveness and Permanence (continued)				
Adequacy of controls	Implementation of alternative would provide Immediate and long-term source control at Site 17.	Analysis is the same as for Alternative RA-1.	Analyses is the same as for Alternative RA-1.	Analysis is similar to Alternative RA-1 although source control would not be as immediate.
Reliability of controls	Thermal treatment is highly reliable.	Analysis is the same as for Alternative RA-1.	Biological treatment reliable for petroleum wastes; however, treatment time may be longer than expected.	Biological treatment is demonstrated for petroleum wastes; however, air sparging and bioventing is an innovative approach and reliability is uncertain.
Reduction of Mobility, Toxicity, and Volume				
Treatment process and remedy.	Soil would be treated via thermal desorption and after burner to destroy organic contaminants.	Analysis is the same as for Alternative RA-1.	Soil would be treated by microorganisms to destroy organic contaminants.	Analysis is the same as Alternative RA-3.
Amount of hazardous material destroyed or treated.	9,870 yd^3 of contaminated soil containing 5,785 kg of TRPH would be treated for this alternative.	Analysis is the same as for Alternative RA-1.	Analyses is the same as for Alternative RA-1.	Analysis is the same as Alternative RA-1 with the possibility that additional contamination in groundwater or deep soil may also receive treatment.
Reduction of mobility, toxicity, or volume through treatment.	Would achieve significant and permanent reduction in toxicity, mobility, and volume of contaminants in soil.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as Alternative RA-1.
Irreversibility of treatment	Thermal treatment is irreversible.	Analysis is the same as for Alternative RA-1.	Biological treatment is irreversible.	Analysis is the same as for Alternative RA-3
Type and quantity of treatment residuals.	A limited amount of ash would be produced during afterburning of vapors and would be handled by off-site vendor. Decontamination water would be treated at the NAS Cecil Field wastewater treatment plant.	Analysis is the same as for Alternative RA-1.	This alternative produces no ash. Water generated would be drained to the excavation or sent to the wastewater treatment plant. Treatment pad materials would be disposed off-site.	No treatment residuals would be produced if this alternative were implemented.

See notes at end of table.

Table 2-3 (Continued)
Comparative Analysis of Remedial Alternatives

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Jacksonville, Florida

Criterion	Alternative RA-1	Alternative RA -2	Alternative RA-3	Alternative RA-4
Short-term Effectiveness				
Protection of community during remedial action.	Dust control would be required during excavation of soil. Fact sheets and posters providing information to the public regarding the remedial action would be distributed. Transportation of wastes off- site poses an increased potential risk.	Analysis is the same as for Alternative RA-1 except no off-site transportation of soil would occur.	Fact sheets and posters providing information to the public regarding remedial action would be distributed.	Analysis is the same as for Alternative RA-3.
Protection of workers during remedial actions.	Workers would be required to follow an approved Health and Safety Plan. Workers within the exclusion zone would be dressed in modified Level D protection and would be on a special medical monitoring program.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
Environmental Effects	Minimal effects to surrounding environment expected. Releases to air are expected to have minimal environmental effect.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
Time until remedial action objectives are achieved.	Approximately 3 months are necessary to meet the remedial action objectives for Site 17.	Approximately 3 months are necessary to meet the remedial action objectives for Site 17.	Approximately 14 months are necessary to meet the remedial action objectives for Site 17.	Actual time required is undetermined, but assumed to be 2 years for cost purposes.
Implementability				
Ability to construct technology.	No construction necessary.	Mobile thermal treatment units are available and could easily be transported to and assembled on-site.	Materials for construction of a biological treatment area are available and easily constructed on-site.	Materials for well installation and air injection are readily available and easily constructed on-site.
Reliability of technology	Treatment standards for contaminated soil would be met by thermal desorption.	Analysis is the same as for Alternative RA-1.	Treatment standards for contaminated soil would be met by biological mechanisms.	Reliability of technology is undetermined due to its innovative nature.

See notes at end of table.

Table 2-3 (Continued)
Comparative Analysis of Remedial Alternatives

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Jacksonville, Florida

Criterion	Alternative RA-1	Alternative RA-2	Alternative RA-3	Alternative RA-4
Implementabiity (Continued)				
Ease of undertaking additional remedial action, if necessary.	Would provide no impediment to additional remediation. Soil could be reprocessed until treatment standards are met.	Analysis is the same as for Alternative RA-1.	Analysis Is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA -1.
Monitoring considerations.	Air monitoring would be conducted as appropriate during excavation. Medical monitoring of workers within the exclusion zone would be required.	Analysis is the same as for Alternative RA-1 with the addition of monitoring during treatment.	Analysis is the same as for Alternative RA-2,.	Air monitoring would be conducted as appropriate at system startup.
Coordination with other regulatory agencies.	Coordination with NAS Cecil Field personnel required for duration of remedial activities. Coordination with county, USEPA, FDEP, and city for soil handling necessary.	Analysis is the same as for Alternative RA-1 but coordination in terms of permits is limited to jurisdictions at Cecil Field. USEPA, FDEP, county, and city would be notified of actions being conducted.	Analysis is the same as for Alternative RA-2.	Analysis is the same as for Alternative RA-2.
Availability and capacity of treatment, storage, and disposal services.	Availability of permitted TSD facilities for treatment of contaminated soil would be required at the time of remedial action. Local vendors handle non-hazardous wastes only.	No services required.	No services required.	No services required.
Availability of technologies, equipment, and specialists.	Construction contractors, equipment, and laboratories are available.	Analysis is the same as for Alternative RA -1. Mobile thermal treatment units are available.	Analysis is the same as for Alternative RA-1. Equipment and materials are available but would have to be assembled on-site.	Analysis is the same as for Alternative RA-1.
Ability to obtain approvals from other agencies.	Approval from State and USEPA necessary prior to off-site treatment of contaminated soil.	Approval from State and USEPA necessary prior to on-site treatment of contaminated soil.	Analysis is the same as for Alternative RA-2.	Analysis is the same as for Alternative RA-2.
Cost				
Total present worth, 8-foot depth (including contingency)	$1,376,000	$1,374,000	$1,176,000	$1,129,000

Notes: OU = operable unit.
Notes: ARARs = applicable or relevant and appropriate requirements.
ppm = parts per million.
TRPH = total recoverable petroleum hydrocarbon.
NAS = naval air station
yd^3 = cubic yard.
kg = kilogram.
NAS = Naval Air Station.
FS = feasibility study.
USEPA = U.S. Environmental Protection Agency.
FDEP = Florida Department of Environmental Protection.
TSD = treatment, storage, and disposal.

2.9.2 Compliance with Applicable or Relevant and Appropriate Requirements (ARARs). All alternatives comply with ARARs. A complete listing of chemical-specific and action-specific ARARs is provided in Tables 2-4 and 2-5. The only potential location-specific ARAR at Site 17 is 40 Code of Federal Regulations (CFR) Part 6, Protection of Wetlands, Executive Order No. 11990, and Chapter 17-611, FAC, Florida Wetlands Application Regulations, November 1990. None of the alternatives is expected to impact the wetland east of the site.

2.9.3 Long-term Effectiveness and Permanence All of the alternatives offer permanent treatment technologies that provide long-term effectiveness. Alternatives RA-1 and RA-2 provide the greatest reliability. Alternative RA-3 is also reliable; however, treatment could take longer than expected. Alternative RA-4 is an innovative approach and its reliability and ability to attain the 50 mg/kg TRPH treatment level is less certain.

2.9.4 Reduction of Toxicity, Mobility, or Volume of the Contaminants All of the alternatives would provide a permanent reduction in toxicity, mobility, and volume of contaminants through treatment. An estimated 9,900 yd^3 of soil containing 5,800 kilograms (6.4 tons) of TRPH would be treated. Alternative RA-4 may also provide some reduction in contamination in groundwater as well, although groundwater remediation is not intended for this interim action.

2.9.5 Short-Term-Effectiveness This evaluation addresses how quickly and effectively site risks are reduced. Workers would be required to follow an approved Health and Safety Plan for all alternatives. Alternatives RA-1, RA-2, and RA-3 would include dust control and monitoring during excavation. Alternatives RA-1 and RA-2 would take an estimated 3 months to complete. Alternative RA-3 would take an estimated 14 months and Alternative RA-4 would take 2 years or more to complete.

2.9.6 Implementability All alternatives use technologies that are relatively easy to implement and are readily available. Approval by the FDEP and USEPA would also be required prior to on-site or off-site treatment.

2.9.7 Cost The estimated cost for the preferred alternatives is $1.4 million. The estimated costs for all alternatives range from $1.1 million for Alternative RA-4 to $1.4 million for Alternatives RA-1 and RA-2.

2.9.8 State and Federal Acceptance The FDEP and USEPA have concurred with the Navy's selection of Alternative RA-2.

2.9.9 Community Acceptance The community has accepted the selected remedy. No written comments were received during the public comment period. In general, comments raised during the public meeting on August 25, 1994, supported the selected alternatives and the expedient implementation of the interim remedial action.

2.10 SELECTED REMEDY. The preferred alternative for source control at Site 17 is Alternative RA-2. The alternative involves excavation of contaminated soil during the seasonal low groundwater. Soil would then be treated by a mobile thermal desorption treatment unit permitted to operate in the State of Florida. Treated soil will then be tested to ensure clean-up criteria have been achieved. The excavation would be backfilled with treated soil.

Table 2-4
Synopsis of Potential Federal Chemical-Specific Applicable or Relevant and Appropriate Requirements (ARARs)

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Jacksonville, Florida

Federal Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
Occupational Safety and Health Act (OSHA), Occupational Health and Safety Regulations (29 Code of Federal Regulations [CFR] Part 1910, Subpart Z)	Establishes permissible exposure limits for work-place exposure to a specific listing of chemicals.	**Applicable.** Standards are applicable for worker exposure to OSHA hazardous chemicals during remedial activities.
Resource Conservation and Recovery Act (RCRA), Identification and Listing of Hazardous Waste (40 CFR Part 261)	Defines those solid wastes subject to regulation as hazardous wastes under 40 CFR Parts 262-265.	**Applicable**. These requirements define RCRA-regulated wastes, thereby delineating acceptable management approaches for listed and characteristically hazardous wastes that should be incorporated into the remedial response.
Safe Drinking Water Act (SDWA), Maximum Contaminant Level Goals (MCLGs) [40 CFR Part 141]	Establishes drinking water quality goals at levels of no known or anticipated adverse health effects with an adequate margin of safety. These criteria do consider treatment feasibility or cost elements.	**Relevant and appropriate.** MCLGs greater than zero are relevant and appropriate standards for groundwater that are current or potential sources of drinking water. MCLGs may be used in evaluating leaching of contaminants from soil to groundwater.
SDWA, National Primary Drinking Water Standards, Maximum Contaminant Levels (MCLs) [40 CFR Part 141]	Establishes enforceable standards for specific contaminants that have been determined to adversely effect human health. These standards, MCLs, are protective of human health for individual chemicals and are developed using MCLGs, available treatment technologies, and cost data.	**Relevant and appropriate**. MCLs are relevant and appropriate standards where the MCLGs are not determined to be ARARs. MCLs may be used for groundwater that are current or potential drinking water sources and may be used at Site 17 when evaluating leaching from soil to groundwater.
Chapter 17-520, Florida Administrative Code (FAC)Florida Water Quality Standards, May 1990	Establishes the groundwater classification system for the state and provides qualitative minimum criteria for groundwater based on the classification.	**Relevant and appropriate**. The classification system established in this rule defines potable water sources. Drinking water standards are established for potable water sources in Chapter 17-550 and could be used in evaluating leaching from soil to groundwater.

Table 2-4 (Continued)
Synopsis of Potential Federal Chemical-Specific Applicable or Relevant and Appropriate Requirements (ARARs)

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Jacksonville, Florida

Federal Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
Chapter 17-550, FAC, Florida Drinking Water Standards, January 1993	Established to implement the Federal Safe Drinking Water Act by adopting the national primary and secondary drinking water standards and by creating additional rules to fulfill State and Federal requirements.	**Relevant and appropriate**. MCLs are relevant and appropriate at Site 17 when considering leaching of contaminants from soil to groundwater.
Chapter 17-770, FAC, Florida Petroleum Contaminated Site Cleanup Criteria, February 1990	Establishes a cleanup process to be followed at all petroleum contaminated sites. Cleanup levels for G-I and G-II groundwater are provided for both the gasoline and kerosene and mixed product analytical groups.	**Applicable**. This is an applicable requirement at Site 17 because it is a petroleum contaminated site discharging to G-II groundwater. However, due to the focused nature of this Focused Feasibility Study (FFS) only soil and its impact on groundwater will be addressed.
Chapter 17-775, FAC, Florida Soil Thermal Treatment Facilities Regulations, December 1990	Establishes criteria for the thermal treatment of petroleum or product contaminated soil. The rule further outlines procedures for excavating, receiving, handling, and stockpiling contaminated soil prior to thermal treatment in both stationary and mobile facilities.	**Relevant and appropriate**. The soil cleanup values established in this rule for total recoverable petroleum hydrocarbon (TRPH), volatile organic compounds (VOCs), volatile organic halocarbons (VOH), polynuclear aromatic hydrocarbons (PAHs), and metals may be relevant and appropriate requirements for contaminated soil and may be applicable if thermal treatment is used.

Table 2-5
Synopsis of Potential Federal and State Action-Specific ARARs

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
Source Control Remedial Alternatives
NAS Cecil Field, Jacksonville, Florida

Federal and State Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
Clean Air Act (CAA). National Ambient Air Quality Standards (NAAQS) (40 Code of Federal Regulations [CFR] Part 50)	Establishes primary (health-based) and secondary (welfare-based) standards for air quality for carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur oxides.	**Applicable**. Site remedial activities must comply with NAAQS. The most relevant pollutant standard is for particulate matter less than 10 microns in size (PM_{10}) as defined in 40 CFR Section 50.6. The PM_{10} standard is based on the detrimental effects of particulate matter to the lungs of humans. The PM_{10} standard for a 24-hour period is 150 micrograms per cubic meter ($\mu g/m^3$) of air, not to be exceeded more than once a year. Remedial construction activities such as excavation will need to include controls to ensure compliance with the PM_{10} standard. The attainment and maintenance of primary and secondary NAAQS are required to protect human health and welfare (wildlife, climate, recreation, transportation, and economic values). These standards are applicable during remedial activities, such as soil excavation, that may result in exposure to hazardous chemicals through dust and vapors.
CAA, New Source Performance Standards (NSPS) (40 CRF Part 60)	This regulation establishes new source performance standards (NSPS) for specified sources, including incinerators. This rule establishes a particulate emission standard of 0.08 grains per dry standard of 0.08 grains per dry standard cubic foot corrected to 12 percent carbon dioxide for sources.	**Relevant and appropriate**. Because NSPS are source-specific requirements, they are not generally considered applicable to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cleanup actions. However, an NSPS may be applicable for an incinerator; or may be a relevant and appropriate requirement if the pollutant emitted and the technology employed during the cleanup action are sufficiently similar to the pollutant and source category regulated.
Department of Transportation Rules for Transportation of Hazardous Materials (49 CFR Parts 107, 171, 173, 178, and 179)	This regulation establishes the procedures for packaging, labeling, and transporting of hazardous materials.	**Applicable.** These requirements will be applicable for transport of hazardous material from the site for laboratory analysis, treatment, or disposal.
Chapter 17-2, Florida Administrative Code (FAC), Florida Air Pollution Rules, September 1990	Establishes permitting requirements for owners or operators of any source that emits any air pollutant. This chapter also establishes ambient air quality standards for sulfur dioxide, PM_{10} carbon monoxide, and ozone.	**Applicable**. Standards for PM_{10} would be applicable during remediation. Engineering controls and monitoring to control dust would be required.
Resource Conversation and Recovery Act (RCRA), Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF) (40 CFR Part 264)	This rule establishes minimum national standards that define the acceptable management of hazardous wastes for owners and operators of facilities that treat, store, or dispose of hazardous wastes.	**Applicable**. If a remedial alternative for Site 17 involves the management of RCRA wastes at an off-site treatment, storage, or disposal unit, the substantive requirements of this rule would be applicable.

Table 2-5 (Continued)
Synopsis of Potential Federal and State Action-Specific ARARs

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Jacksonville, Florida

Federal and State Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
RCRA, Use and Management of Containers (40 CFR Part 264, Subpart I)	Sets standards for the storage of containers of hazardous waste.	**Relevant and appropriate.** Remedial action implemented at Site 17 may involve the storage of containers that may contain RCRA hazardous waste. The staging of study-generated RCRA wastes should meet the intent of this regulation. These requirements are applicable for containerized RCRA hazardous wastes at CERCLA sites and may be considered relevant and appropriate for wastes not classified as hazardous.
Chapter 17-775, FAC, Florida Soil Thermal Facilities Regulations	This rule establishes criteria for the thermal treatment of petroleum or petroleum product contaminated soil. Guidelines for management and treatment of soil to levels that prevent future contamination of other soil, groundwater, and surface water are provided. Chapter 17-775.300, FAC, provides permitting requirements for soil thermal treatment facilities. This section states that soil must be screened or otherwise processed in order to prevent soil particles greater than 2 inches in diameter from entering the thermal treatment unit. This rule further outlines procedures for excavating, receiving, handling, and stockpiling contaminated soil prior to thermal treatment in both stationary and mobile facilities.	**Applicable**. This requirement is applicable to treatment alternatives that employ thermal treatment technologies. It may be relevant and appropriate for other treatment alternatives.
RCRA, Mainifest System, Recordkeeping, and Reporting (40 CFR Part 264, Subpart E)	This rule outlines procedures for manifesting hazardous waste for owners and operators of onsite and offsite facilities that treat store, or dispose of hazardous waste.	**Applicable**. These regulations apply if a remedial alternative involves the offsite treatment, storage, or disposal of hazardous waste. For remedial actions involving onsite treatment or disposal of hazardous waste, these regulations are relevant and appropriate
Hazardous Materials Transportation Act (49 CFR Parts 171, 173, 178, and 179) and Hazardous Materials Transportation Regulations	These regulations establish procedures for the packaging, labeling, manifesting, and transporting of hazardous materials.	**Applicable**. For remedial actions involving offsite treatment, storage, or disposal, contaminated hazardous materials would need to be packaged, manifested, and transported to a licensed offsite facility in compliance with these regulations.
RCRA, Standards Applicable Transporters of Hazardous Waste (40 CFR Part 263, Subparts A - C, 263.10-263.31)	This rule establishes procedures for transporters of hazardous waste within the United States if the transportation requires a manifest under 40 CFR Part 262.	**Applicable**. If a remedial alternative involves offsite transportation of hazardous waste for treatment, storage, or disposal, these requirements must be attained.

Table 2-5 (Continued)
Synopsis of Potential Federal State Action-Specific ARARS

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Jacksonville, Florida

Federal and State Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Proces
RCRA, Standards Applicable to Generators of Hazardous Waste (40 CFR Part 262, Sub-parts A - D, 262.10-262.44)	These rules establish standards for generators of hazardous wastesthat address: accumulating waste, preparing hazardous waste for shipment, and preparing the uniform hazardous waste manifest. These requirements are integrated with U.S. Department of Transportation (DOT) regulations.	**Applicable.** If an alternative involves the off-site transportation of hazardous wastes, the material must be shipped in proper containers that are accurately marked and labeled, and the transporter must display proper placards. These rules specify that all hazardous waste shipments must be accompanied by an appropriate manifest.
RCRA, Identification and Listing of Hazardous Waste (40 CFR Part 261, 261.1-261.33)	This rule defines those solid wastes that are subject to regulation as hazardous wastes under 40 CFR Parts 262-265. The applicability of RCRA regulations to wastes found at a site is dependent on the solid waste meeting one of the following criteria: (1) the wastes are generated through a RCRA-listed source process, (2) the wastes are RCRA-listed wastes from a non-specific source, or (3) the waste is characteristically hazardous due to ignitability, corrositivity, reactivity, or toxicity.	**Applicable.** Contaminated soils could be classified as a RCRA hazardous waste. Historical records do not suggest soils would be a listed waste and soil contamination does not indicate soils would be characteristically hazardous; however, specific testing would have to be conducted to evaluate this possibility. Residuals from treatment methods may also be classified as RCRA hazardous wastes and would have to be tested for RCRA hazardous characteristics.
RCRA, Land Disposal Restrictions for Newly Listed Wastes and Hazardous Debris (40 CFR Parts 148, 260, 261, 262, 264, 265, 270, and 271)	This rule sets forth five options for management of hazardous debris: (1) treat the debris to performance standards established in this rule through one of 17 approved technologies, (2) obtain a ruling from USEPA that the debris no longer contains hazardous waste, (3) treat the debris using a technology approved through an "equivalent technology demonstration," (4) treat the debris to existing Land Disposal Restriction (LDR) standards for wastes contaminating the debris and continue to manage under RCRA Subtitle C , or (5) dispose of debris in a Subtitle C landfill under the generic extension of the capacity variance for hazardous debris, which currently expires on May 8, 1994.	**Applicable**. Debris at Site 17 is not anticipated; however, if encountered, it would be classified as hazardous debris if it is contaminated with RCRA listed waste that has LDR standards or with waste that exhibits a hazardous characteristic. Under CERCLA, removal of contaminants from debris by decontamination and replacing the debris within an area of concern (AOC) is permitted. As long as movement of waste is conducted within the AOC and outside of a separate RCRA unit, placement of wastes has not occurred and, therefore, LDRs are not triggered. However, if the debris is determined to be hazardous, and placement is determined to occur, one of the five listed options must be selected for management of hazardous debris.
RCRA, Corrective Action Management Units; Corrective Action Provisions Under Subtitle C (40 CFR Parts 260, 264, 265, 268, 270 and 271)	This rule establishes corrective action management units (CAMU) and temporary units (TUs) as two options for corrective actions at permitted RCRA facilities.	**Applicable.** The substantive requirements of this rule is a potential ARAR at Site 17 because hazardous wastes may be stored on-site for any remedial alternative implemented.
RCRA, Land Disposal Regulations (LDRs) (40 CFR Part 268)	This rule establishes restrictions for the land disposal of untreated hazardous wastes and provides treatment standards for these land-banned wastes. Under this rule, treatment standards have been established for most listed hazardous wastes.	**Applicable**. Treatment standards for wastes removed at Site 17 would be established upon completion of testing of materials. If it is determined that wastes removed from Site 17 are subject to these regulations, then the wastes must be treated prior to disposal in a RCRA Subtitle C landfill.

Table 2-5 (Continued)
Synopsis of Potential Federal and State Action-Specific ARARs

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Jacksonville, Florida

Federal and State Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
RCRA, Contingency Plan and Emergency Procedures (40 CFR Subpart D, 264.30-264.37)	This regulation outlines the requirements for procedures to be followed in the event of an emergency such as an explosion, fire, or other emergency event.	**Relevant and appropriate.** These requirements are relevant and appropriate for remedial actions involving the management of hazardous waste.
Occupational Safety and Health Act (OSHA), General Industry Standards (29 CFR Part 1910)	This act requires establishment of programs to assure worker health and safety at hazardous waste sites, including employee training requirements.	**Applicable.** Under 40 CFR 300.38, requirements apply to all response activities under the National Oil and Hazardous Substances Contingency Plan (NCP). During remedial action at the site, these regulations must be maintained.
OSHA, Recordkeeping, Reporting, and Related Regulations (29 CFR Part 1904)	Provides recordkeeping and reporting requirements applicable to remedial activities.	**Applicable.** These requirements apply to all site contractors and subcontractors and must be followed during all site work. During remedial action at the site, these regulations must be maintained.
OSHA, Health and Safety Standards (29 CFR Part 1926)	Specifies the type of safety training, equipment, and procedures to be used during site investigation and remediation.	**Applicable.** All phases of the remedial response project should be executed in compliance with this regulation. During remedial action at the site, these regulations must be maintained.
RCRA, General Facility Standards (40 CFR Subpart B, 264.10-264.18)	Sets the general facility requirements including general waste analysis, security measures, jnspections, and training requirements.	**Applicable.** Because the remedial action planned for Site 17 may involve the management of RCRA wastes at an off-site TSDF, these requirements are applicable.
RCRA, Preparedness and Prevention (40 CFR Part 264, Subpart C)	This regulation outlines requirements for safety equipment and spill-control for hazardous waste facilities. Facilities must be designed, maintained, constructed, and operated to minimize the possibility of an unplanned release that could threaten human health or the environment.	**Applicable.** Safety and communication equipment should be incorporated into all aspects of the remedial process and local authorities should be familiarized with site operations.
Chapter 17-4, FAC, Florida Rules on Permits, May 1991	Establishes procedures for obtaining permits for sources of pollution.	**Relevant and appropriate.** The substantive permitting requirements of this rule must be met during the remedial action at Site 17.
Chapter 17-736, FAC, Florida Rules on Hazardous Waste Warning signs, July 1991	Requires warning signs at National Priority List (NPL) and Florida Department of Environmental Regulation (FDEP; formerly Florida Department of Environmental Regulation [FDER]) identified hazardous waste sites to inform the public of the presence of potentially harmful conditions.	**Applicable.** Because Naval Air Station (NAS) Cecil Field is currently listed on the NPL, this requirement is applicable.
RCRA, Solid Waste Land Disposal Requirements (40 CFR Part 258)	This rule sets forth requirements for disposal of waste within a solid waste landfill. Also sets forth construction and monitoring requirements of Subtitle D landfills.	**Applicable.** This rule stipulates that no free liquids, no hazardous wastes, and no reactive wastes may be deposited within a Subtitle D landfill. These requirements are applicable if soil and wastes are disposed at a Subtitle D landfill.

Notes: ARARs = Applicable or Relevant and Appropriate Requirements.
OU = operable unit.
NAS = naval air station.

Thermal desorption treatment of contaminated soil is used frequently for treatment of petroleum-contaminated soil associated with leaking underground storage tanks at former gasoline stations. The technology uses heat to volatilize contaminants from soil without incinerating the soil. The volatilized contaminants are destroyed in an afterburner that treats all of the offgases from the system. The technology has been demonstrated as reliable for treatment of the types of contaminants present at Site 17.

Alternative RA-2 is protective of the environment, provides a permanent remedy, and is cost effective. The Navy estimates that the preferred alternative would cost $1.4 million and would take approximately 3 months to implement.

2.11 STATUTORY DETERMINATIONS. The interim remedial action selected for implementation at Site 17 is consistent with CERCLA and the NCP. The selected remedy is protective of human health and the environment, attains ARARs, and is cost effective. The selected remedy also satisfies the statutory preference for treatment that permanently and significantly reduces the mobility, toxicity, or volume of hazardous substances as a principal element. Additionally, the selected remedy uses alternate treatment technologies or resource recovery technologies to the maximum extent practicable. Any soil contamination remaining on-site after this interim remedial action will be addressed during the RI and FS for this OU and the resulting Record of Decision.

2.12 DOCUMENTATION OF SIGNIFICANT CHANGES. There are no significant changes in this interim remedial action from that described in the Proposed Plan.

REFERENCES

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APPENDIX A

RESPONSIVENESS SUMMARY

Responsiveness Summary

Interim Record of Decision
Oil and Sludge Disposal Area Southwest, Site 17, OU 2
NAS Cecil Field, Florida

Comment	Response
Questions from the Public Meeting	
What is EPAs responsibility of cleaning up these sites with the time frame you've got?	The responsibility of the EPA is to ensure that the Navy cleans the sites up tp the standards that are identified for this interim action and the subsequent risk assessment and final remedial action.
Is the risk assessment scheduled?	Yes.
Are the taxpayers of Jacksonville going to be stuck with the cleanup bill?	No. The Navy has made a commitment to finish the cleanup even after they turn the base over to the future landholder.
Was EPA involved in the selection of the Navy's contractors (i.e., ABB and Bechtel)?	No. Since it was a DOD contract, neither the State of Florida nor EPA was involved in any of the negotiations or the contract in any way. The contracts that are in force right now were selected by Southern Division out of Charleston, South Carolina.
Is EPA involved in the interim actions all along as they progress? Does the EPA come in and just comment afterwards or are they a party to the effective cleanup?	At Cecil Field, there is an ongoing relationship between EPA, FDEP, the facility, and Southern Division. All parties are involved on a daily basis.
I'm trying to find out who is responsible for cleaning up the work, work to be done and when it's done, what will be done. Who is responsible for that? Is EPA a party to the start-up of the cleanup of the site?	The Navy is responsible for the cleanup work and must obtain concurrence from EPA and FDEP on all facets of the process, from the initial investigation to the final remedial action.
How many wells have gone through the dolomite?	Two wells were installed through the dolomite at Site 17 and site contaminants were not found in either.
Did we look at other technologies?	Yes, we did. The alternatives selected are believed to fit the criteria the best. We looked at 10 or 12 different technologies, developed remedial alternatives, and selected the alternative that best fits the criteria prescribed by regulations. Bechtel is the remedial action contractor. They may obtain subcontractors as needed to help out with the remediation.
You mentioned a moment ago in your presentation that the work would begin in October. Are contracts actually let for the people in the field to perform the work by Bechtel, for example? In other words, is it too late at this point in the event that the comment period might cause you to change your selection of the recommended alternative? I mean how can it start in October?	If we had a significant change in the alternatives that might delay when we could begin to implement the remedial action. The October date assumes that we go ahead as expected. Bechtel is already in the process of trying to figure out what they need in order to implement the alternative. Any significant changes to the proposed alternative would only effect planning activities since field activities have not began.

Comment	Response
If you've already selected a remedy -- are the contracts already let, does that mean a remedy has already been selected?	The entire purpose of the public comment period is to listen to public concerns and to ensure the selected interim remedy fits what needs to be done as everyone sees it. It is the Navy's plan to go ahead and implement the alternative described, but it's not written in stone. EPA, FDEP, and the Navy, believe that the proposed alternative is the best reasonable choice. There are nine criteria that each remedy alternative is judged against and one of them is public input.
Of the nine is one of them cost?	Yes
Of the nine how is cost weighed?	Cost is not considered a primary criterion, but it should be taken into consideration.
Well, what about digging it up and transporting it up to Georgia and having it recycled into concrete or asphalt for 35 bucks? What's the matter with that?	Remediation cost is an important concern. We have done our very best to consider the most cost-effective alternative, not necessarily the cheapest. The Navy has contracted with Bechtel to remediate the site and part of their job is to hire subcontractors to assist in implementing this work. The Navy has no desire to waste money. The decision to treat onsite was made because the Navy wanted to manage its long-term liabilities.
Who is providing the guarantee for the cleanup? Is that Bechtel?	The Navy is responsible. We go out and we sample after the cleanup is complete and verify that the cleanup has occurred.
If you find it's not cleaned up, what happens?	Then we have to get it cleaned up. The contractor or the Navy will take on the financial burden of any additional cleanup activities.

Comment	Response
Is there a guarantee in the contract on the part of the contractor that he will do what the specs call for as far as the cleanup goes, and what he has to do?	We have a performance specification in our remediation contract, and when Bechtel contracts with a local subcontractor to do thermal, biological, etc., treatment actions the subcontractor has performance criteria he has to meet. Now, if the contractor meets that performance criteria and the system does not work, in other words, he has done his job and the design was ineffective, then that's not the contractor's problem, that's the Navy's problem. We have no intention of failing, but there are no guarantees. We have selected a technology for this Interim Remedial Action based on its reliability. This is a short-term quick action to reduce the source. And we don't go pick technology that might or might not work. The idea is to pick something that is tried and true.
I was wondering with Site 17 if you could explain a little bit more, I guess, in technical terms how the output gases are treated. The off gases from thermal treatment unit?	There are a few ways that you can actually treat it. Probably the most commonly used by vendors in the state of Florida, at least for cleanup of gasoline sites, is the use of an afterburner. What happens with an afterburner is gases are passed through a chamber into which auxiliary fuel injected. This is burned at a high temperature. What this does is it chemically breaks down and destroys the contaminants in the offgases before they are discharged to the air. It burns the contaminants along with the fuel that you put in there. Its a combustion process similar to what happens in an automobile engine or in a jet engine. What you get out is a function of the fuel that's added in the afterburner as well as the contaminants that are being treated. In this case where we have contaminants that were originally fuels, we don't expect anything to be drastically different than what you would get from an auto combustion engine.

Comment	Response
What is it that keeps the contaminants from leaving the field and moving on somewhere else and establish them somewhere else? The way the water runs in the aquifer and everything is away from Cecil Field. So what has kept it from leaving there from these sites and going somewhere else and coming back up in a different place and contaminate somewhere else? As long as they have been there and as much rain and as much water that flows down it would have leached out on the other ground in between the two.	The way we typically investigate a site we install wells at the site to understand where groundwater flows and whether groundwater contamination exists. Then we follow any contamination from the site outward until we find clean groundwater. It may be a misconception that the groundwater flows like a stream. At this base groundwater flows a quarter of an inch a year to several feet per year. And you don't typically find that the contamination disappears and then reappears further down. We have found that contamination has not migrated off the base.
Oral comment from John Austin to Bert Byers	
Are your consultants looking at innovative technologies, such as cross-flow pervaporation, for these interim actions?	The Navy continually researches innovative technologies for possible implementation at Navy sites. For interim actions a proven technology is often required because of time restraints. Cross-flow pervaporation is an innovative technology for the treatment of VOCs in a liquid waste stream. This technology will be evaluated as a groundwater treatment technology in the feasibility study for OU 2.